

Application Number 09/737,540
Amendment dated March 25, 2004
Reply to Office Action of December 30, 2003

REMARKS

Claims 10-17 are canceled as being directed to a nonelected invention. New claims 18-25 are added.

Claims 1-9 are rejected under 35 U.S.C. § 102(e) as being anticipated by Ishibashi, *et al.* (U.S. Patent No. 6,150,690). In view of the amendments to the claims and the following remarks, the rejections are respectfully traversed, and reconsideration of the rejections is requested.

The Applicants' invention is directed to a wiring on a semiconductor device. A first conductive layer, such as a source or drain region, is formed on a semiconductor substrate. A first insulation layer is formed on the first conductive layer, and the first insulating layer is planarized by chemical mechanical polishing (CMP). As a result of the CMP process, a scratch may be formed on the surface of the first insulation layer. A second insulation layer is formed immediately over the first insulation layer in contact with the first insulation layer such that the scratch is covered by the second insulation layer. A via hole is formed through the first and second insulation layers, and a second conductive layer is formed in the via hole down through both insulation layers in a single layer contacting the top of the first conductive layer. A groove is formed in the second insulation layer, and a third conductive layer is formed in the groove. The depth of the groove is less than the thickness of the second insulation layer, such that any conductive material which may form in the scratch on the top surface of the first insulation layer does not contact the third conductive layer. This prevents bridging or shorting between the second conductive layer and the third conductive layer caused by conductive material in the scratch.

The claims are amended to clarify certain features of the invention. Specifically, the claims have been amended to clarify that the second conductive layer extending down through the via hole is a single conductive layer, that is, it is not a layer that includes multiple connected layers. It is believed that this amended claim language clarifies the distinctions between the

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claimed invention and the Ishibashi, *et al.* patent.

Referring to Ishibashi, *et al.* at Figure 36, the Examiner refers to the contact plug 11b and layers 18 and 19 as the Applicants' claimed second conductive layer. The source/drain region 106 of Ishibashi, *et al.* is referred to as the Applicants' claimed first conductive layer. The interlayer insulating layer 10 of Ishibashi, *et al.* is referred to as the Applicants' claimed first insulation layer, and the Ishibashi, *et al.* interlayer insulation layer 12 is referred to as the Applicants' claimed second insulation layer. However, in Ishibashi, *et al.* the conductor formed in the via hole includes multiple conductive layers. Specifically, the conductor formed in the via hole in Ishibashi, *et al.* includes a contact plug 11b and contact plugs 17, which are formed from a barrier metal layer 18 and a refractory metal layer 19. Hence, in Ishibashi, *et al.*, the conductor formed in the via hole down to the source/drain region 6 actually includes multiple layers; it is not a single conductive layer, as now set forth in the Applicant's amended claims. Ishibashi, *et al.* also fails to teach or suggest a scratch formed in a first insulation layer by a CMP process, as set forth in the amended claims.

Accordingly, Ishibashi, *et al.* fails to teach or suggest the invention set forth in the Applicants' claims. Therefore, it is believed that the amended claims are allowable over Ishibashi, *et al.*, and reconsideration of the rejections of claims 1-9 under 35 U.S.C. § 102(e) based on Ishibashi, *et al.* is respectfully requested.

New claims 18-25 are presented for examination. New claims 18-25 correspond to pending claims 1-6, 8 and 9, respectively. All of the new claims incorporate most of the features of the invention set forth in the previously pending claims, including the second conductive layer being a single conductive layer. However, the new claims do not include the subject matter directed to the scratch formed in the first insulation layer. This subject matter is not found in the Ishibashi, *et al.* patent.

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In view of the foregoing remarks, it is believed that all claims pending in the application (claims 1-6, 8, 9 and 18-25) are in condition for allowance, and such allowance is respectfully solicited. If a telephone conference will expedite prosecution of the application, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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